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# BUSINESS INGENUITY

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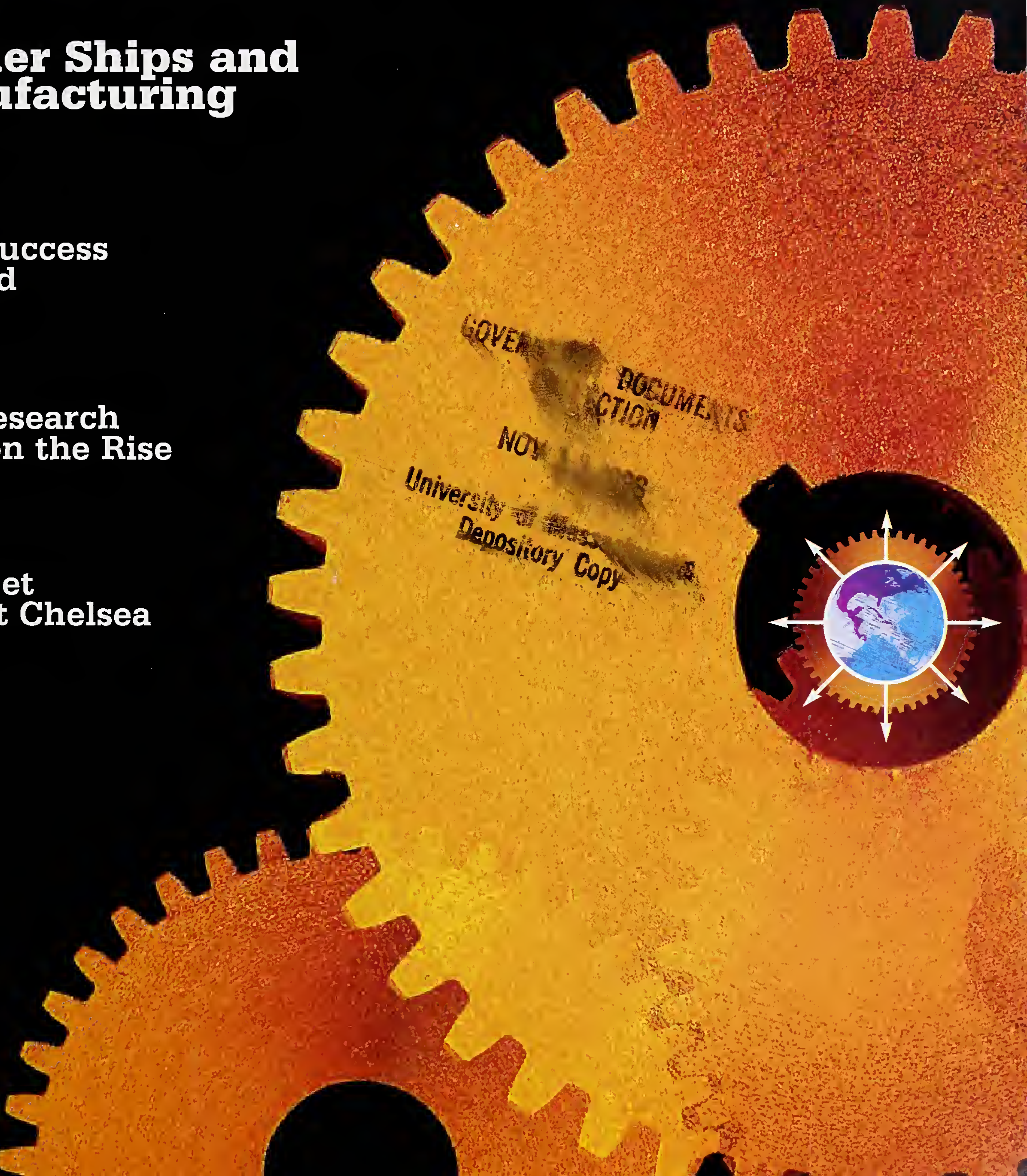

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# Don't Look for Answers; Look for Ingenuity

*Tony Bogar*

No, you haven't seen this magazine before. This is the inaugural issue of *Business Ingenuity*, a quarterly publication designed to serve two purposes.

Our primary goal is to provide you with ideas and information that you can incorporate into your business strategies. There are many magazines out there, perhaps in your briefcase right now, filled with how-to articles and useful tips. That's good, but that's not our approach. You've got all the tips you need (many a decent duffer has lost his game by trying every tip in every golf magazine), and you certainly couldn't have reached your current position without knowing your business. We understand that.

We strive to be beneficial on a different level. Ingenuity is what we are all about. We want to help you generate ideas, fit pieces of a puzzle together, develop solutions. We also want to prompt you to ask questions. Where is your business headed? Where are your customers going? What is the next step? The step after that? What patterns are developing in your company, in the economy, in society that you can use to your advantage?

Don't look to us for all the answers. You know your business better than anyone else. Instead, use *Business Ingenuity* to find the right questions to ask, to find the ideas that will lead you to your own solutions. Read our business theory features—in this issue, we discuss the evolution of manufacturing partnerships—to discover emerging trends. Read our case studies—EMC has revived itself by making the right strategic decisions—to learn from other people like you. Read *Business Ingenuity* with the understanding that we are not pitching panaceas, that you are responsible for developing the strategies that fit your specific circumstances. Use *Business Ingenuity* as a catalyst.

You will notice that there are no advertisements in this issue. Nor is there a subscription cost. You are sophisticated enough to know that this is not an altruistic gift to the business community.

Thus, our second purpose. *Business Ingenuity* is sponsored by the Massachusetts Office of Business Development (MOBD). The features are bookended by departments that are intended to keep you abreast of developments here in the Bay State. It is also, quite honestly, a subtle pitch for your business. As you think about the future of your company, relocation questions undoubtedly will come to mind. We think Massachusetts should be a part of your decision-making process. We have a highly educated workforce, vibrant economy, diverse communities, and ever-improving business infrastructures, including innovative tax incentives and a government agency—MOBD—that can assist you in your expansion and relocation process. Massachusetts is home to some of the most creative and motivated thinkers in the world. You know that. What you might not know is that Massachusetts is a very good place to do business.

> ***Don't look to us for all the answers. You know your business better than anyone else. Instead, use* Business Ingenuity *to find the right questions to ask, to find the ideas that will lead you to your own solutions.***

The two purposes of this magazine converge in one word: ingenuity. We want to share with you the ingenuity that we find all around us in Massachusetts, from Harvard University and the Massachusetts Institute of Technology in Cambridge to the high-tech engines along Route 128, from the biotechnology incubator in central Massachusetts to the research labs at the University of Massachusetts at Amherst. We hope you can use these ideas to advance your own business and to inspire, within yourself and your colleagues, your own type of ingenuity.

We hope *Business Ingenuity* becomes a valuable tool for you and your company. Your feedback can help us fill that role. Please send your comments to: ***Business Ingenuity*, 125 Walnut St., Watertown, MA 02172.**

Tony Bogar

# BUSINESS 1 INGENUITY

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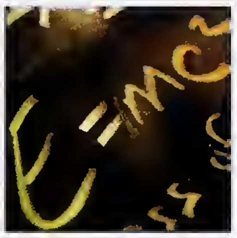

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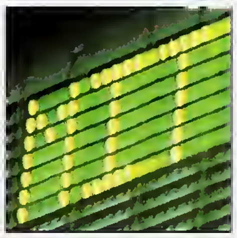

PHOTOS: BARRY HETHERINGGON

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*By Brian Sullivan*

Officials in this Massachusetts city are reaching out to businesses with offers that give Chelsea new appeal and a new stature in the economy **Page 26**

PHOTOS: KATHY TARANTOLA

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## *Mutual Benefit for Mutual Fund Service Companies*

Massachusetts has become a friendlier place for the mutual fund industry in the past year with legislation that provides strong tax incentives for those companies based in Massachusetts, which claims 23 percent of all the mutual fund assets in the United States.

*What this means for mutual fund service companies is that not only will the percentage of sales on which they are taxed drop dramatically, but sales will be the only factor upon which the state tax is based. "You could see approximate percentage reductions going from the 90 percent range down to the 20 percent range," says Will Hazel, formerly of the Massachusetts Department of Revenue.*

The new law is twofold, one part redefining where mutual fund sales can be said to take place, and the next elevating the importance of this factor in the apportionment of a company's income.

The "destination test" section of the law allows a corporation (such as an investment adviser) providing services to a mutual fund to treat its charges for those services as Massachusetts sales only to the extent that fund shareholders live in the Bay State. This reduces, for many companies, the number of Massachusetts-based sales and, therefore, the tax due to Massachusetts.

The second part of the law states that mutual fund companies may use a 100 percent single sales factor formula to apportion their income, rather than the old formula, in which three factors—property, payroll, and sales—were used. Under this law, tax will be based solely on sales. In order to use this apportionment formula, mutual fund companies must meet certain job growth requirements.

What this means for mutual fund companies is that not only will the percentage of sales on which they are taxed drop dramatically, but sales will be the only factor upon which the state tax is based. Depending on the particular facts, "you could see approximate percentage reductions going from the 90 percent range down to the 20 percent range," says Will Hazel, formerly of the Massachusetts Department of Revenue and now a partner at the law firm of Chu, Ring and Hazel, of Boston.

If a mutual fund service company fails to meet the criteria for job growth—defined as a 5 percent increase from its 1996 employment level and an increase of the same amount each year after that for five years—it will not be allowed to use the single sales factor formula and instead will be required to use the old three-prong apportionment. The destination test, however, applies to a company regardless of job growth.

Hazel describes the single sales factor as an "extra carrot" for a mutual fund company already benefiting from the destination test. The setup benefits everyone, including the state, which, with the higher job levels, will eventually collect more individual taxes, "which is more than the corporate excise you're going to get out of me [a mutual fund company],” he notes.

“It’s not fair to tax me as if 100 percent of my business were based in Massachusetts,” Hazel says. “Part of my economic opportunity has nothing to do with Massachusetts. By recognizing that, [the state] makes it more appealing for me to come here or to stay here.”

## *Making Movies in Massachusetts*

The Massachusetts film industry has been heating up recently, with the Bay State serving as a backdrop for everything from big-studio releases (Dreamworks SKG’s *Amistad*) to critically acclaimed independent films (*Next Stop—Wonderland*, which made its debut at the Sundance Film Festival). As the beautiful people flock to Beantown, the dollars follow. The film industry had a total economic impact of $396 million on the Massachusetts economy in 1995 alone, according to a Northeastern University study.

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And it’s not just local FX houses and camera operators who benefit.

“Lots of businesses are affected by the film industry,” asserts Ann Scanlon, media and marketing coordinator for the Massachusetts Film Office. “Hotels, airlines, restaurants, car rental agencies.” She recalls that when Neil Jordan’s upcoming Dreamworks SKG film *In Dreams* was shooting in the Northampton area, the Inn at Northampton was booked nearly solid for weeks. At the same time, a local hardware store “couldn’t keep duct tape in stock,” she says. “Film production brings in so much revenue and so many jobs.”

Benefits to the state aren’t limited to economic ones, either. For the filming of director Nicholas Hytner’s version of *The Crucible*, starring Winona Ryder and Daniel Day-Lewis, the crew built an entire 17th-century village on Hog Island in Ipswich. “In return,” says Scanlon, “20th Century Fox made improvements to the property, put in a well, and updated the docks” in the area.

Among the movies filmed recently in Massachusetts: The Academy Award-nominated *Good Will Hunting*, starring Robin Williams and the Cambridge-native screenwriting team of Matt Damon and Ben Affleck, shot all around Harvard University, the Massachusetts Institute of Technology, Bunker Hill Community College, and

***Benefits to the state aren’t limited to economic ones. For the filming of* The Crucible, *starring Winona Ryder and Daniel Day-Lewis, the crew built an entire 17th-century village on Hog Island in Ipswich. “In return,” says Ann Scanlon of the Massachusetts Film Office, “20th Century Fox made improvements to the property, put in a well, and updated the docks” in the area.***

South Boston. Steven Spielberg's *Amistad* descended for a day on the State House—thanks to the Massachusetts Film Office's Fee-Free Locations program, which allows filmmakers to shoot at certain state-owned facilities free of charge. More recently, *In Dreams*, with Annette Bening and Aidan Quinn, was shot in the Northampton area, and *A Civil Action*, starring John Travolta and based on Jonathan Harr's nonfiction account of a case in Woburn, was shot in Boston and Quincy. That particular shoot was attended by none other than film buff and Massachusetts Governor Paul Cellucci.

Some Massachusetts locales are especially popular with movie makers, including the classic New England feel of *Good Will Hunting* haunt Harvard Square; and the coastal areas and islands, such as Nantucket, the setting for Michael Pressman's *To Gillian on Her 37th Birthday*, starring Michelle Pfeiffer. (Pfeiffer's husband, Boston University Law School graduate David E. Kelley, has set many of his projects in Massachusetts, including his current television series *Ally McBeal* and *The Practice.)*

But mostly, says Scanlon, people are attracted to Massachusetts because it is "very diverse. We don't have a specific look that people go for—we have a lot of looks."

## Meet Me in "Southie"

Boston will get a new convention center that will allow it to once again attract the largest gatherings of businesses and trade associations in the country. In November 1997 the Massachusetts Legislature approved construction of a $700 million center to be built near the waterfront in the South Boston neighborhood. Work is expected to begin this year, and the center is scheduled to open in 2002.

▼

State leaders have predicted that the 600,000-square-foot facility could attract 500,000 conventioneers annually and bring in as much as $1 billion a year in visitor spending. The convention center also will likely boost the building of thousands of new hotel rooms in the Boston area, including a 1,000-room hotel on the site itself.

The convention center will be another piece in the development of the waterfront. Already in place in the area are the new federal courthouse on Fan Pier and the Seaport Hotel across from the World Trade Center. Next up will be a 16-story building, a joint venture between Fidelity and the Drew Co. An extension of the Massachusetts Bay Transportation Authority's Red Line is also planned, making access to the site easier.

## Hotels Spring Up in Worcester

Two new hotels are planned for Worcester's downtown area, bolstering the city's economic development agenda.

▼

Marriott International, Inc. will build a new Courtyard hotel on Grove Street, providing 150 moderately priced rooms aimed at business travelers. Scheduled to open in the spring of 1999, the Courtyard will be the first hotel built in the downtown area of Worcester since 1982, when the Worcester Crowne Plaza opened.

And the Peabody Hotel Group is evaluating a downtown site for the possible construction of another new hotel. On December 10, the Worcester Redevelopment Authority gave the Peabody group exclusive hotel developer status for 60 days. The group will evaluate whether the city can support another hotel in addition to the new Marriott site.

The planned hotels are partly in response to the 190,000-square-foot, $38 million convention center adjacent to the Worcester Centrum. The new convention center, which had its grand opening in September, has a total of 100,310 square feet of exhibition space and includes two ballrooms, 11 meeting rooms, and a VIP lounge.

## Framingham Bounces Back

Though it suffered a blow back in 1989 when the local General Motors plant closed, Framingham plans to rejuvenate its downtown area with the help of a "downtown manager" it will hire.

Among the projects being discussed: incentives for business owners to renovate their building facades, a study of the needs of downtown businesses, a $180,000 streetscape improvement project, a new location for the commuter rail terminal, and a $900,000 project to fix five intersections, including repaving and new traffic signals.

About 1,600 jobs were lost with the closing of the GM plant; however, between 1993 and 1995, over 5,000 new jobs were added in this ethnically diverse community.

## Gateway to the United States

Overseas technology companies are getting a helping hand in their expansion into the U.S. market, thanks to a Boston organization called Market Gateway.

Run by the New England Israel Chamber of Commerce, Market Gateway provides office space in South Boston, as well as advice to newcomers on everything from American business laws to where to find housing. Several Israeli companies are already settled in the South Boston offices, and new arrivals from Ireland, Scotland, and possibly Northern Ireland and Nova Scotia are expected soon.

Boston is a convenient spot for European and Middle Eastern companies to make their first forays into America. In addition to the area's well-established high-tech market, the location means a shorter flight back to the home country, as well as more closely overlapping time zones than in a state further to the west. While some companies move on once they outgrow their Market Gateway space, others—including Irish software firm Iona Technologies, PLC, which has a 70-person office in Cambridge—are choosing to settle down in the Bay State.

## Taxman Logs Off

Governor Paul Cellucci has signed a bill eliminating the sales tax on on-line services. A special committee has until December 1, 1998, to file a recommendation to make the law permanent.

If this recommendation is not made, Internet services will again be taxable after July 1, 1999. "Making Massachusetts an Internet tax-free zone puts us on equal footing with other high-tech states such as California, Washington, and Florida," Cellucci said late last year.

In addition to the moratorium on Internet taxes, Massachusetts taxpayers are eligible for a refund on the taxes they have paid on Internet services since 1990.

# Entrepreneurs, Investors

## *Make Good Neighbors*

*Christopher Kenneally*

Measured either by area or by population, Massachusetts isn't qualified for membership in the "Land of the Giants" club. The Commonwealth is the sixth smallest state in the union, and it has just over 6 million residents, fewer than cities like Tokyo or New York. When it comes to venture capital, though, the Bay State stands tall in the international business world.

According to a report released this fall by the Paris-based Organisation for Economic Co-operation and Development (OECD), Massachusetts—proportionally speaking—ranks first among the 50 states in venture capital, with $1.2 billion in assets raised. Second-place California, with $3.7 billion in venture capital assets raised, has a population nearly five times as great as Massachusetts's. Together, the OECD calculated, Massachusetts and California accounted for more venture capital than the 15-nation European Union and held 40 percent of all American venture capital assets.

Yet another leading survey of venture capital investment, the Money Tree Report issued quarterly by Coopers & Lybrand LLP, ranked three Boston-based outfits—BancBoston Capital; Atlas Venture; and Advent International Corp.—in the top five of the nation's most active VC firms for the second quarter of 1997. These "big three" reported 29 initial investment deals into U.S.-based and overseas companies in that period.

Proximity to venture capital in Massachusetts, and the access to investment dollars which typically follows, "is the engine that drives entrepreneurs," says Paul Severino, chairman of NetCentric, a Cambridge-based supplier of Internet fax software and services for network service providers. "I think it makes a huge difference," adds the founder and former chairman of Bay Networks.

Severino ought to know. Following his graduation from Rensselaer Polytechnic Institute in 1969, he moved from Troy, N.Y., to Massachusetts to work at Digital Equipment Corp. In the three decades since, Severino has started three major high-tech companies in the Bay State, with Interlan and Wellfleet Communications receiving infusions of venture capital investment at their founding, he notes. (The third, Bay Networks, did not.)

He may be a restless entrepreneur, but the critical mass of capital and engineering talent in Massachusetts has allowed Severino to put down roots. "I didn't have to move," he says. "I was able to do what I needed to do right here."

More than likely, investors would have found Severino no matter where he lived. In a globalized economy, venture capital has a reasonably small interest in where a business is located. When they are determining whether to sink funds into a company, investors typically consider other points, such as the skills and experience of the management team and the market viability of innovative products and services.

"The money travels to where the ideas are," notes C. Kevin Landry, managing director and CEO of TA Associates, a Boston-based VC-private equity firm that invests about $250 million annually. According to the Money Tree Report, for example, Massachusetts venture capitalists placed 71.2 percent of their total investment dollars in the second quarter of 1997 outside the state.

Nevertheless, venture capitalists agree that there is a decided advantage for entrepreneurs who share an address with so many of their potential investors. "Our objective is to build very big companies, and we like to spend time with management teams to grow their companies," acknowledges Rick Burnes, founder and general partner of Charles River Partners, a Waltham-based VC firm that has invested approximately $300 million in 250 early-stage companies since its founding in 1970.

"We like to be able to have breakfast with entrepreneurs," Burnes says. By his own estimate, two of every three Charles River deals are with Massachusetts-based companies.

According to Landry, entrepreneurs almost naturally congregate in the hothouse educational environment of Massachusetts. When they start businesses and eventually take them public, he has observed, they can take advantage of the substantial number of technological and financial services available to them locally. "They are able to leverage off the human capital that's here," Landry explains.

Moreover, the large number of VC firms located in Massachusetts presents a smorgasbord of opportunities for investors. Charles River Partners, for example, has an average deal size of about $3 million, while for TA Associates, the figure is more than $15 million. To address a "capital gap" confronting start-up companies in the early stage of market development, the Commonwealth in 1978 formed the Massachusetts Technology Development Corp. (MTDC), which usually participates in deals for less than $1.5 million.

"In Massachusetts, we have the full range of types of investors," says John Hodgman, MTDC president. "As a company goes through the various stages of growth, it has ready access to a panoply of investors. This also means that Massachusetts has become very diversified in the types of businesses that are launched here." ●

*Together, the OECD calculated, Massachusetts and California accounted for more venture capital than the 15-nation European Union and held 40 percent of all American venture capital assets.*

Michael C. Ruettgers,
President and CEO,
EMC Corporation

EMC CORP.

# Success Squared$^2$

**In climbing to the top of the ultra-competitive, $10 billion computer data storage industry, executives at Hopkinton, Mass.-based EMC$^2$ Corp. got used to making big decisions. None was bigger than the company's decision three years ago to deep-six its commitment to its mainframe computing storage clients and concentrate instead on the burgeoning networked computer field.**

*by Brian O'Connell*

That decision enabled EMC to dominate the network data storage industry (networked, or "open," data systems enable multiple computer servers to connect corporate information systems networks), generating $2.7 billion in sales in 1996 with a stock price that surged higher than any other company's on Wall Street from 1990 to 1995. How hot is EMC now? Merrill Lynch analyst Steven Milunovich recently gushed to *The Boston Globe* that EMC was poised to enter the rarefied stratosphere of high-technology heavyweights like Microsoft and Intel: "[It's] the next franchise company in technology."

EMC CORP

He's not alone. Investment banking giant Morgan Stanley, which makes a living backing corporate champions, points to "growing investor recognition that EMC is a franchise company that could join Microsoft, Intel, Cisco, and Oracle in the pantheon of great technology names." And in 1995 EMC became the world's biggest maker of data storage systems, beating out none other than IBM.

All heady stuff for a company that nearly went out of business in 1988. At the time, it sputtered along with $190 million in sales in 1990 as a promising but underperforming manufacturer of add-on computer memory cards. The word "bankruptcy" was whispered from cubicle to cubicle in the company's headquarters after a series of systems failures in the company's storage products. (The mishaps were later traced to specks of makeup and facial oils on the products' computer disks, which came from a Japanese supplier.)

### Engineering a Corporate Makeover

Even the biggest companies suffer growing pains. Just over three years ago sales at EMC were slumping again, its core business of building mainframe storage components losing steam to the fast-developing and higher-selling computer networks that were set to supplant the big machines. With his company's viability in question, President and CEO Michael C. Ruettgers had a revelation as 1994 drew to an uncertain end for his company. "Why not build open data storage products that work in symphony with these computer networks?" the 54-year-old Ruettgers asked. "Why not build open storage systems that can accommodate software data on mainframes as well as any other computer platforms operating within a company?"

Ruettgers, a Harvard Business School graduate, recognized what information systems managers wanted almost before they knew it themselves: quick, reliable access to reams of corporate data in a secure, straightforward fashion.

In early 1995, EMC engineers went to work on it. After a few months, they crafted a crude open storage system out of a laundry list of high-tech tools, including a 5 1/4-inch desktop computer disk and some built-in store-and-retrieve software. Bundling disk drives together, the company had created a networked storage device that could access computer data much faster than traditional 5 1/4-inch disk drives. The key was in creating a high-tech method of parking data in ultra-fast computer memory chips, where data speeds could approach 3,000 transactions per second. Company engineers also scaled down the size of the gargantuan mainframe storage devices and made sure they could accommodate any computer network environment, be it IBM, Hewlett-Packard, or Sun Microsystems.

*EMC Symmetrix Enterprise storage*

It was a bold gambit. Ruettgers told *Business Week* that when he predicted EMC would sell $200 million worth of the new open storage products in 1995, "even my sales guys said it was crazy." By the end of 1996, sales ($2.3 billion) and profits ($386 million) had both tripled, and a new computing powerhouse was (re)born. 1997 looks even better. Analyst estimates for that year indicate that EMC would post higher numbers than ever, with profits climbing 39 percent to $535 million, and sales revenues rising 25 percent to $2.8 billion. "It's hard for a multi-billion dollar company to keep growing this fast, but EMC is pulling it off," says Milunovich from his New York office. "EMC should continue to grow stronger for years to come."

## Have Storage Systems, Will Travel

Another key decision that the company made to stay ahead of the curve was to place added emphasis on its international operations. In 1990, the year EMC entered the mainframe storage market, IBM held 76 percent of the market and EMC held less than 1 percent. Deciding that transitioning to open storage products would work only if it expanded its market base overseas, EMC focused on developing a top-shelf foreign manufacturing and distribution operation, opening a major manufacturing plant in Ireland and research and development centers in France and Israel. In lockstep with that move, EMC continued opening sales and services in various ports of call around the globe and forged distribution pacts with local distribution partners overseas. By 1997 more than 45 percent of the company's sales were expected to come from its far-flung overseas operation.

But Ruettgers and company weren't done transforming EMC. Belying the notion that it was a one-hit wonder, the company expanded beyond its core open storage manufacturing business into storage-and-retrieval software and services and developed a new technology that ported data from old storage systems to EMC's with no disruption of service. To ensure a longer shelf life for its storage devices, EMC also began developing proprietary software like remote maintenance applications at a cost of $1 billion over an eight-year period, plugging the software into its storage hardware. That kept competitors from cloning its products (Ruettgers maintains that customers are investing in EMC's computing philosophy and not simply a commodity) and made the all-important migration path—the ability for information services managers to scale their storage systems upwards as needed—easier to manage. The company also places a great deal of emphasis on product testing. "We want to test 100 percent of our products because we don't want them failing 100 percent of the time," Ruettgers said at the time. Customers pay for EMC's attention to detail. The company charges twice as much as its competitors for its storage systems.

*With his company's viability in question, EMC President and CEO Michael C. Ruettgers had a revelation as 1994 drew to an uncertain end for his company. "Why not build open data storage products that work in symphony with these computer networks?" the 54-year-old Ruettgers asked. "Why not build open storage systems that can accommodate software data on mainframes as well as any other computer platforms operating within a company?"*

### Moving on Up

In only two years EMC had parlayed its new open storage enterprise into a $1.3 billion business and created more demand than ever among corporate customers for its popular product line. Practically bursting at the seams, company officials began huddling together about the need to expand. "We'd always had opportunities to go elsewhere, but we never really wanted to do that," says Mark Frederickson, public relations manager for the company. "We recognized that the skilled workforce that Massachusetts offered us would be hard to find elsewhere. But we needed to expand just the same."

Many EMC employees felt that staying in Massachusetts was a top priority. The style of Silicon Valley just didn't suit the buttoned-down Bostonians who had graduated from the region's many top colleges and planted roots in the Bay State with EMC. "Our skilled workforce is the biggest advantage of being in Massachusetts, and we didn't want to lose that," Frederickson adds. "We all pretty much felt that eastern New England offered us a great quality of life, one we might not have elsewhere. Uprooting a whole company of 2,500 employees [out of 5,500 worldwide] is not an easy task."

**_Many EMC employees felt that staying in Massachusetts was a top priority. The style of Silicon Valley didn't suit the buttoned-down Bostonians who had graduated from the region's many top colleges and planted roots in the Bay State with EMC. "Our skilled workforce is the biggest advantage of being in Massachusetts, and we didn't want to lose that," says Mark Frederickson, public relations manager for EMC._**

In the end, leaving its home 40 miles southwest of Boston proved too much. Forgoing a proposed move to Quonset Point, R.I., the company decided instead to build a new manufacturing plant in Franklin, Mass., only 10 miles or so up the road from its anchor facility in Hopkinton. The new plant will add 1,000 jobs to the Massachusetts economy and will fuel a worldwide manufacturing push by EMC that will double the company's manufacturing capacity by the end of 1999.

EMC brass realized that, with few hourly wage-earners, the need to remain close to the highly educated workers that the Bay State offered outweighed most other considerations. "The educational base that Massachusetts offered is more important to EMC than it is to more traditional manufacturers," says Frederickson. "Plus, we had established a great network of local suppliers, and we didn't want to tinker with that either."

In short order, a blueprint was developed for a new manufacturing site in Franklin, the future home of a 555,000-square-foot plant that is expected to be completed by the end of 1998. The company had already added 80,000 square feet of space to its Hopkinton headquarters and added two buildings to its main campus as well, for an additional 200,000 square feet of manufacturing space.

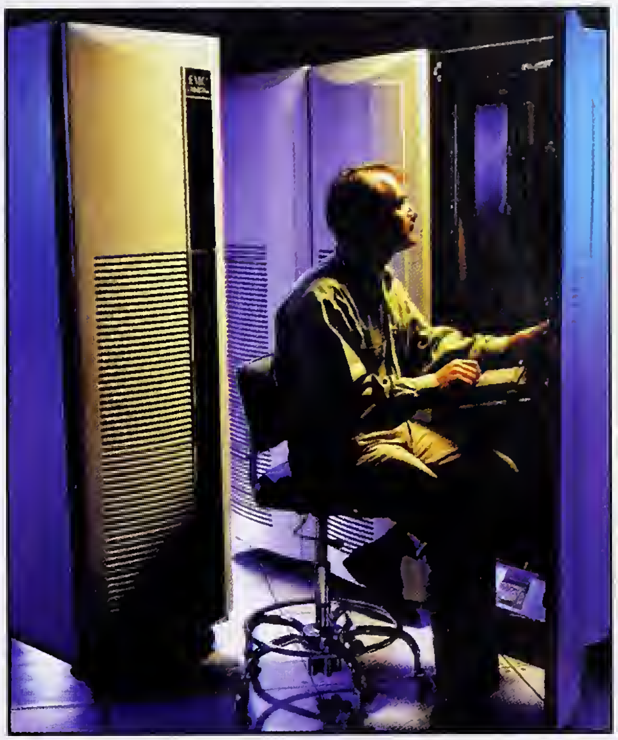
"The town of Franklin did a wonderful job working with EMC to help us move forward on the fast track for construction on the new facility," Frederickson says. The Franklin Industrial Park "land came pre-approved and required very little regulatory approval with no road-

blocks. The town did an exemplary job of making us feel welcome."

With 1,000 new jobs in tow, both EMC and Massachusetts expect nothing but good times ahead for the company, its workforce, and its customers. "When you have a company as big as EMC saying they're going to stay here and expand here," says David A. Tibbetts, Massachusetts Director of Economic Development, "that's good news for everybody."

Indeed, when a company is cruising in the same rarefied air as the Microsofts and Oracles of the world, the last thing it needs to decide is where to call home. That decision already made, Ruettgers & Co. can now decide what market to conquer next. ●

*Brian O'Connell is a freelance business writer based in Framingham, Mass.*



EMC CORP.

## Who Ya Gonna Call?

EMC's prestigious list of global clients reads like a "who's who" of international commerce. In Massachusetts alone, EMC counts BankBoston, Ocean Spray, Gillette, TJ Maxx, and Staples among its customers. Domestically and internationally, it's hard to find a big-name company that doesn't turn to EMC for its storage systems solutions. More than half of the Fortune 100 companies are EMC clients, including the top 25 banks in the United States, nine of the world's top 10 telecommunications companies, and more than 95 percent of the worldwide reservations systems.

Why EMC?

"We've made a major commitment to consolidate our computer network," explains Gil Stringer, Ocean Spray's computer services manager, "and EMC's storage technology is the foundation of this new environment. They simply raise the overall reliability and protection of our IS investment." The bottled juice giant is consolidating its rapidly expanding data storage enterprise across IBM, HP, NEC, and Gateway hardware platforms, using EMC's Symmetrix 3400 Enterprise Storage system.

At Washington, D.C.-based Red Cross, EMC is helping the organization provide its 38 blood service regions access to the world's largest blood bank database. "The superiority and reliability of EMC's Symmetrix Enterprise storage systems and software enable us to ship blood 24 hours a day, 365 days a year," says CIO Tom Woteki. "We can manage our huge volumes of data more efficiently and dramatically improve our data administration at the same time."

EMC's latest coup might have been its efforts to streamline the information services portion of the BayBank and Bank of Boston merger in mid-1997. The task required managing 4.5 terabytes of data (or 1.1 billion pages of text). The data included vital information like loan and mortgage applications, home banking and trust application files, and savings and checking account information—the type of material that, if lost, would have thousands of New Englanders doubting the new bank's credibility. "Without EMC, a data consolidation transfer of this magnitude would not have been viable," says Bob Parsons, consulting engineer on the BankBoston merger project. "EMC helped save us millions of dollars and allowed us to eliminate the inefficiencies of running a duplicate facility that we don't need."

All in a day's work at the world's number one data storage provider.

*—B.O'C.*

MIT 35
1000s

# mit Research Stock Rises

## Wall Street pays attention when these academics study finance

*by S.C. Biemesderfer*

Before the first U.S. stock exchange opened in 1791, securities were mostly sold by brokers in coffeehouses; the New York Stock Exchange didn't get a permanent building for its raving, fist-waving traders until 1865. By 1987, latte-swigging suits in lower Manhattan blamed Black Monday's 508-point fall, at least in part, on computerized trading. A decade later, at the close of one of the U.S. stock markets' most breathtaking years ever, electronic circuit breakers were credited with aborting a steep October tumble—keeping intact Wall Street's beguiling, albeit alluring, amalgam of gamble, blame, and free-flowing high stakes.

By contrast, the Massachusetts Institute of Technology (MIT) once seemed worlds apart from the rough and tumble of Wall Street—no less steeped in tradition but certainly insulated from the day-to-day slugging of bets against odds. Yet all that has changed. Ever since MIT's Robert C. Merton (now at Harvard) and Myron S. Scholes (now at Stanford) published their stock option pricing in 1973 (earning a Nobel Prize in 1997), New York's financial district has been a living, screaming case study for researchers at the MIT Sloan School of Management. These academicians are people you don't bother calling until after the market has closed.

Everything is not academic at the Sloan School. To gain a trader's attention, research, like any commodity, must cut to the heart of the market: help investors make money or save them from losing it. A nugget of Wall Street's conventional wisdom is reversing—connections are now eclipsed by expertise. As an on-line MIT handbook puts it: "The gentleman banker who got his job through knowing the right people has largely disappeared. At a premium today is the man or woman who can correctly price a convertible zero coupon bond or line up an interest rate swap and explain his or her analysis to a corporate treasurer in Chicago or London."

## Flying Through a Portfolio

Enter Andrew W. Lo, Harris & Harris Group Professor of Finance and director of MIT's Laboratory for Financial Engineering. Lo's self-described "curiosity" about minimizing transaction costs for large trade orders turned into a paper a few years ago, and is now (with his consulting help) a big moneymaker for Investment Technology Group, Inc. (ITG), a New York firm that sells technology-based equity trading services. "Basically, they automated my algorithm, and it's saving money for ITG's clients, most of whom are institutional traders executing huge blocks of transactions," explains Lo. (ITG's POSIT system currently trades more than 14 million shares a day.)

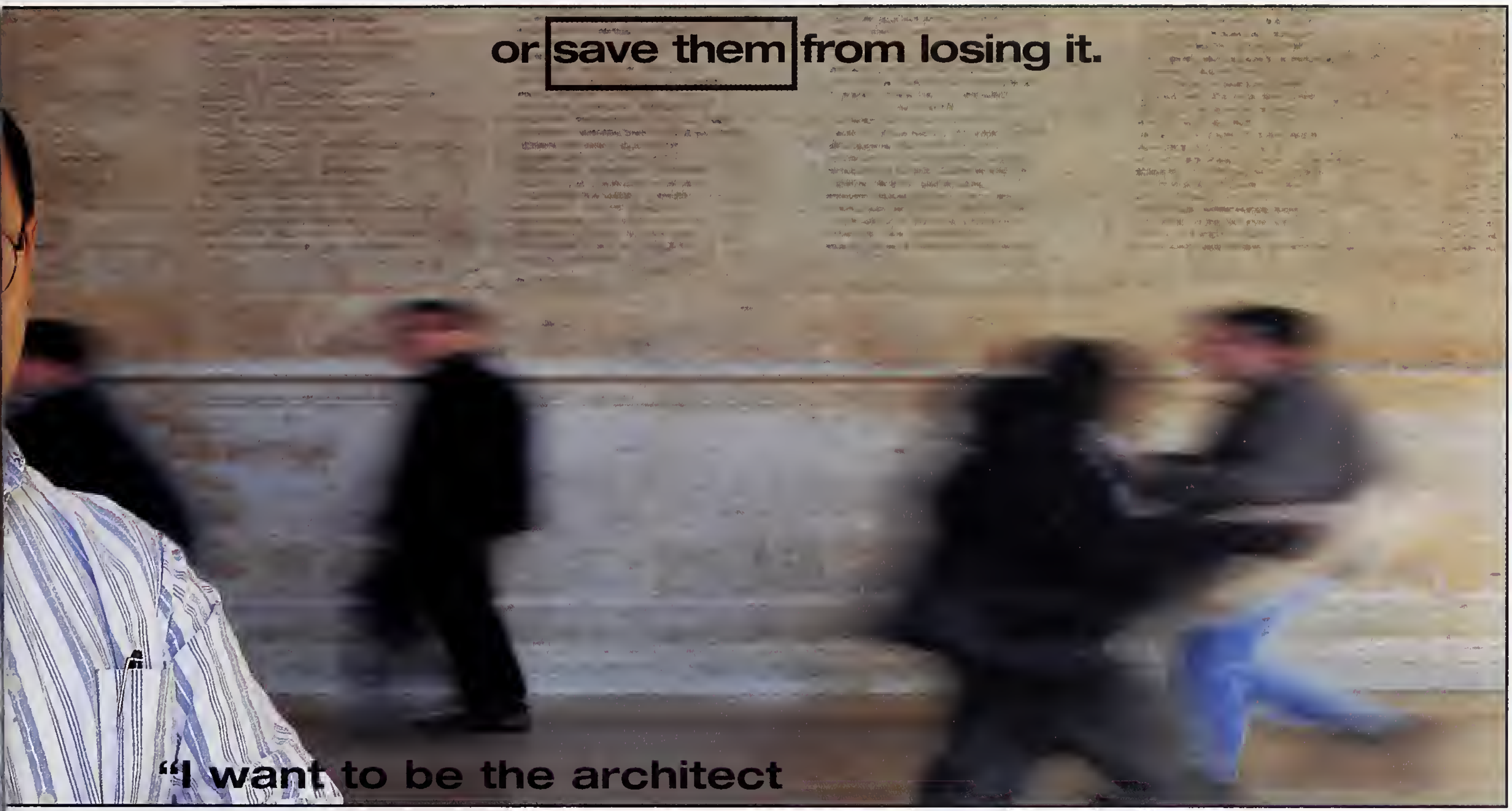
Corporate sponsors of Lo's work range from white-collar elite (Merrill Lynch, CS First Boston) to Silicon Valley's best (Silicon Graphics). In addition to his work on derivatives and trading dynamics, Lo has designed a three-dimensional mapping system for portfolios. "You can literally fly across your portfolio landscape," explains Lo, "and see your expected return, volatility, and liquidity. This picture is worth 10,000 numbers." Lo, who describes most economic theories as "too abstract," has spurned Wall Street job offers, preferring academia's license to traverse new ground. "Some ideas work out, some don't. Wall Street is not so forgiving."

Wall Street may not forgive, but it listens when a guy like Lo talks, or even thinks about something really hard. "Practitioners and professors are more closely bound than ever before," observes Scott Mason, president and chief executive officer of ITG. "The gestation period for interesting ideas is inordinately short."

Lo concurs: "Ten years ago, you could publish a paper and maybe two years later someone in the industry would look at it. Now, things are much more competitive, and word moves quickly." (In part, Wall Street's keen eye for research reflects the values of its corporate population. The National Science Foundation estimates that U.S. companies spent more than $130 billion on research and development last year, a 10 percent increase.) Although it can take months for noteworthy research results to appear in a scholarly journal, "I guarantee you," says Mason, who earned an MIT Ph.D. in financial economics, "the gist of that research will have reached dozens of real-world organizations months beforehand."

And those real-world organizations are moving more money and larger trades than ever before. Since the early 1970s, trading volume on U.S. stock exchanges has risen more than 1,000 percent. Pushing to extend a seven-year surge, in 1997 Wall Street broke the 8,000-point barrier, saw its first billion-share day, and repeatedly closed with record highs and gains. October's 554-point, shutdown-inducing drop notwithstanding, U.S. markets have been feeding the nation's "non-paper" economy with historic encouragement to spend. From the money (for example, the derivatives market is valued in the trillions, and a single firm, Merrill Lynch, manages more than $70 billion

# Research must cut to the heart of the market: help investors **make** money or save them from losing it.



"I want to be the architect that designs the technology of markets of the future."

—Andrew W. Lo, **MIT** Laboratory for Financial Engineering

**Modern-day risk assessment isn't just about money, it's about time.**

**—Michael Siegel, Sloan School**

in assets) to the mix of risks (beyond stocks and bonds—futures, commodities, foreign currency), every tilt of the economic globe holds prospects for calamity as well as windfall. Everything is more, and everything is about what is next—the next trade, the next trend, the next millennium.

Enter Lo again: "I want to be the architect that designs the technology of markets of the future," says Lo, whose "Artificial Markets Project" (see http://cyber-exchange.mit.edu) uses on-line pseudo-traders to simulate a market environment; in turn, Lo and his colleagues will program computers to simulate that human behavior. Not rocket science, just computer science and a dab of psychology, says Lo. "Human beings are not probabilistic creatures. That is why, for example, we tend to sell winners too soon, and hold onto losers too long. What [Nick] Leeson did at Barings [sink the firm in the Japanese market] was just human nature, really. He was faced with either taking a monumental loss or going double or nothing." According to Lo, if we better understand the cognitive roots of these human tendencies, we can achieve his goal: teaching computers to replicate them.

### Architecture and Idiosyncracies

But what exactly does that mean for the architecture of future markets? Will there be room for human idiosyncrasies and original thought on the Brave New Wall Street? Last December, *The Wall Street Journal* featured a Pennsylvania firm that favors computer models over human traders—forget the suits, newswires, and rants, just look at your screen and stay quantitative. In this scenario, all bets are on the conscience of a massive, high-powered computer system. In fact, hundreds of millions of shares are already bought and sold this way every week on the New York Stock Exchange.

But Lo contends the hype about such approaches can be misleading: "We're not talking about replacing human traders, just leveraging their skills. That's what computers have done all along, not replaced human specialists, but leveraged their abilities." There isn't any program that can replace human traders, assures Lo. "Sure, there are programs that can help traders quite a bit, but if you lose the human factor, you lose judgment calls and intuition. Besides that, the two main forces that drive the market can't be mimicked by computers—fear and greed."

"We believe in quantitative techniques and models, certainly," says Robert C. Jones, managing director in the asset management division of Goldman, Sachs & Co. in New York. "We are objective and we religiously do what the model says, but we reserve the right to override certain results based on intuition or other information." Jones, whose firm reported more than $3 billion in earnings last year, also points out that markets dip and soar based on more than emotion: "Certain key factors can be measured quite well now," says Jones, "such as risk."

And if you ask MIT's Michael Siegel, risk—with a capital "R"—not behavior, is what Wall Street's all about. "We have seen a multitude of examples, literally around the world, of risk management failures," says Siegel, co-director of the Sloan School's Finance Research Center. "But risk can be quantified, even controlled." Siegel is a leading expert on "value at risk" (VaR), the most common way for the financial world to gauge the gamble of a deal or outlay. For example, a trader might say that his firm's VaR is $100,000 with 95 percent probability, meaning that, over the next day, there is only a 5 percent chance of losing more than $100,000. "The bottom line," according to Siegel, "is that you need to know how exposed you are. There isn't any Wall Street firm that hasn't made risk management the most important thing they do."

Moreover, modern-day risk assessment isn't just about money, says Siegel, it's about time. Gone are the days when firms would meet once a month to set limits on how much traders could gamble. Now, you can set your clock by the daily 4:15 p.m. meeting at J.P. Morgan, where traders' risks are reported, authorized, and reined in—not enough rope for even a lone rogue trader to hang a firm out to die.

"What people don't realize is that Wall Street has never been safer," says Siegel. "We can see how much an individual firm or an individual trader is at risk. If your money is at stake and you're looking at two traders with equal returns, but one is consistently at greater risk, well, your pick is simple—the goal is greater return for less risk." To that end, Siegel is also working on Merrill Lynch- and Price Waterhouse-sponsored projects to better integrate data. "There is so much information now from so many sources: Web sites, wires, 24-hour newscasts. There is only so much traders can take in or make room for, intellectually and literally, on their desks."

## Practical Research

"The interest in academic work is greater now because the research is more practical, more on point," explains Jones of Goldman Sachs. "It used to be that researchers were stuck on perfect market efficiency, and traders didn't want to hear academic gobbledygook about inefficiency—that didn't help them. But now on Wall Street, there is an appreciation for quantitative techniques. And on academia's side, they've accepted that the market is not going to be completely efficient and moved on to other more interesting things." In fact, virtually all of the Sloan School's MBA graduates go on to work in the finance industry. The Class of 1997, for example, landed mostly consultant positions (37 percent) and investment banking posts (23 percent).

Jeremy Stein, a colleague of Siegel and Lo, suspects he'll have more than gobbledygook when his current study wraps up this spring. Stein has set out to explain two seemingly contradictory, but widely held, market views: (1) short-run momentum, the idea that stocks continue to move in the same direction for short periods of time—"If you look at a stock that's done well during the last six months," explains Stein, "it's likely to continue to do well during the next six months"; and (2) long run reversals. "Eventually," says Stein, "a stock goes too far in one direction, so if you see that a stock has performed poorly during the past three to five years, chances are, its performance will improve during the next three to five years."

Now that he's explained how these two theories coexist (see "A Unified Theory of Underreaction, Momentum Trading and Overreaction in Asset Markets")—Stein is running the numbers, identifying the stocks for which these theories hold particularly true. Some of his scientific assumptions entail judgments about traders, described in his paper as "boundedly rational agents," most of them either "newswatchers" who make decisions based on information (such as earnings announcements, stock issues and repurchases, and analyst recommendations) rather than past or current prices, and "momentum traders," who he says make money by trend-chasing (a simple strategy that assumes a price increase to be a good indicator, regardless of its origin).

Stein is keeping mum on the study results for now, but admits he might be getting more calls from Wall Street once the final word is out. "There could definitely be investment management implications here," says Stein. In other words, the end result of Stein's theory-wrangling and number-wrestling could be the stuff of traders' dreams since the coffeehouse days: prediction and profit. ●

*S. C. Biemesderfer is a business writer whose articles have appeared in the* Los Angeles Times, Continental, *and other publications.*

# Mother Ships & Manufacturing

## Horizontal model of manufacturing takes wing in outsourcing era

*by Michael J. McDermott*

The past decade of economic upheaval has seen the deconstruction of huge corporate entities, such as AT&T, into smaller, more market-responsive companies, such as Lucent Technologies. At the same time, "outsourcing" emerged as the buzzword in industries ranging from health care to retailing. By the mid-1990s more than three-quarters of Fortune 500 companies had efforts under way to outsource business support services, two-thirds were outsourcing logistics, and half were farming out information technology services. Despite this sea change in so many sectors of business, manufacturing, in many cases, seemed to be headed in the opposite direction.

It's not that the efficiencies of outsourcing and the liabilities of vertical integration were lost on manufacturers at the operational level. Indeed, just-in-time (JIT) strate-

**"Companies can no longer function individually; they need a critical mass in order to succeed. By providing a pool of skills, services, and relationships with suppliers and other companies, industry clusters create strength that large manufacturers can tap into."**

**—Michael E. Porter, Harvard Business School**

gies and electronic data interchange (EDI) were well on their way to becoming standard operating procedures for manufacturers in the early part of this decade. When it came to making strategic decisions about plant location, however, it sometimes seemed that the lessons learned on the manufacturing plant floor never made the journey up the ranks to the headquarters level.

"Perhaps the greatest illustration of the danger of vertical integration in manufacturing is what General Motors went through in the 1980s," says Paul S. Kennedy, president of Kennedy Die Castings Inc. in Worcester, Mass., and chairman of the Manufacturing Our Future economic summit held there in September 1997. In the face of increased competition from overseas manufacturers, GM factories were nevertheless churning out cars that consumers simply did not want to buy. "The inward focus of vertical integration makes a manufacturer slow and overly bureaucratic," Kennedy says. "Different areas within the company become protective of their own turf and resistant to market changes."

The result for General Motors was a flirtation with bankruptcy, and the result for manufacturing in general was the emergence of a horizontally stratified theory of manufacturing called the "Mother Ship" model.

Under this model, a Mother Ship manufacturer/assembler produces an end product for distribution to its sales channels in a plant that relies on a community of smaller, specialized suppliers to provide the parts and services it needs. Harvard Business School professor Michael E. Porter describes these communities as industry clusters.

"Companies can no longer function individually; they need a critical mass in order to succeed," he says. "By providing a pool of skills, services, and relationships with suppliers and other companies, industry clusters create strength that large manufacturers can tap into."

An important part of the industry cluster model is a strong local base of educational resources and a reliable infrastructure, which varies by industry but can include airports, telecommunications systems, and information. "The government's role in industry clusters is to eliminate unnecessary regulatory obstacles and ensure that schools, roads, and other government responsibilities are high quality and well maintained," Porter says. "Strong connections between industry clusters and institutions of higher learning are also critical to long-term success."

## Network/Partnership Strategy

To be sure, the basic elements of Mother Ship manufacturing have been used in many industries for decades, often under different names. In fact, although contract manufacturing is a well-established business practice, it has frequently been a key issue in management-labor negotiations as manufacturers have moved away from the old vertical model and toward horizontal integration. It has been a particular bone of contention in the automotive industry.

There are many ways manufacturers can outsource certain tasks and establish partner relationships with their suppliers, and each has different ramifications for the manufacturer's strategic plan. The simple approach is to farm work out to the lowest bidder. However, such a short-sighted focus on price alone brings its own dangers. Many manufacturer/assembler companies that moved to areas without existing industry clusters discovered these dangers in the 1980s. A more sophisticated approach is the network strategy adopted by many multinational companies with plants located around the world.

Key to making a network/partnership strategy such as Mother Ship manufacturing work is effective supply chain management. First made prominent in the computer and electronics industries, supply chain management aims to improve timing and costs in manufacturing and delivery through strong vendor relationships. "A structured business approach to balance, synchronize and synergize all internal and external resources and assets to achieve competitive success" is how the Consortium for Advanced Manufacturing-International defines it.

Manufacturers pursuing a supply chain management strategy must first identify their core competencies, i.e., the processes they want to keep in-house. In some cases, those core competencies might be limited to the assembly of finished products and the distribution and marketing of those products. In others, manufacture of certain key components might also be done at the Mother Ship plant.

The automotive industry provides a good illustration of how supply chain management works. Ford Motor Company, for example, has determined that engines and transmissions are its most important manufactured components. It retains design rights for those components and produces them in its own factories. Certain other components are also considered critical enough to warrant in-house manufacture, but the vast majority of parts in Ford cars are made by outside vendors and delivered to Ford Mother Ship plants on a JIT basis for assembly.

*Key to making a network/partnership strategy such as Mother Ship manufacturing work is effective supply chain management. First made prominent in the computer and electronics industries, supply chain management aims to improve timing and costs in manufacturing and delivery through strong vendor relationships.*

FORD MOTOR COMPANY

*Ford Motor Company is one corporation that employs the Mother Ship model of manufacturing with great success.*

Keeping the process efficient requires Mother Ship companies to limit the number of vendors/partners in its supply chain. That enhances production efficiency because the Mother Ship plant then has fewer orders and deliveries to administer. Such streamlined vendor relationships can translate to lower overhead and reduced labor requirements.

"The outsourcing and supply chain management strategies inherent in the Mother Ship model have appeal to manufacturers that goes beyond cost savings," says Roger Nagel, CEO and executive director of the Iacocca Institute at Lehigh University in Bethlehem, Penn. "It can provide them with an ability to customize products by tapping their suppliers' specialized expertise that goes far beyond what the Mother Ship company would be able to do on its own."

## The Role of Customer Satisfaction

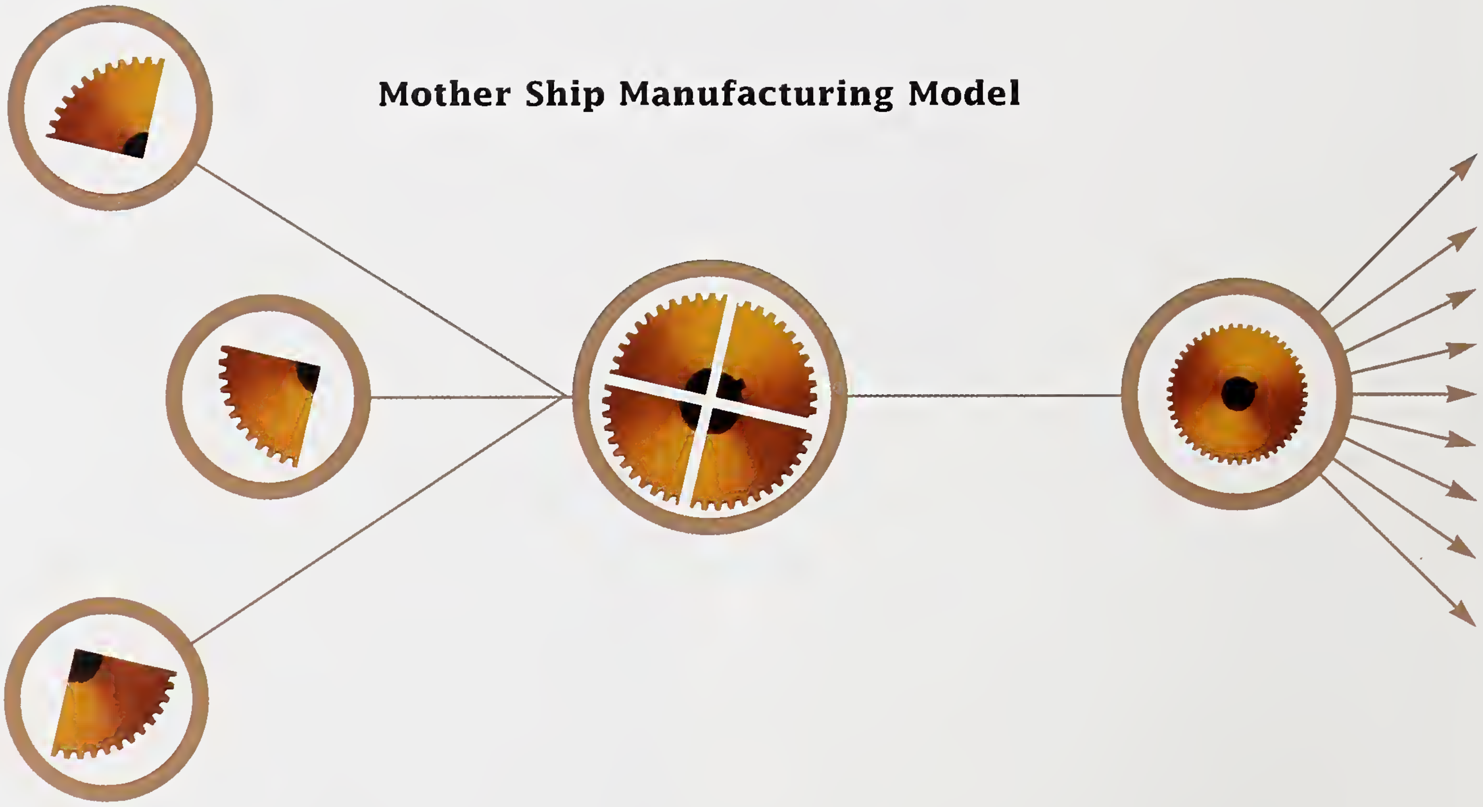
Nagel believes the demand for customized products will lead to tremendous growth in contract manufacturing and outsourcing strategies such as the Mother Ship model in the years ahead. "Customer satisfaction has become paramount in business, and customers increasingly demand products that meet their unique specifications, rather than the mass-produced goods that have dominated manufacturing through most of this century," he says.

For the Mother Ship model to work, of course, an industry cluster of specialized vendors/partners and the accompanying educational and infrastructure support must already be in place. This is the hard lesson some manufacturer/assembler companies learned when they relocated plants in pursuit of lower taxes and labor costs.

"This became very clear to me when I visited North Carolina representing the North American Die Casting Association about 15 years ago," says Kennedy. The state had attracted a number of large companies, including IBM and Outboard Marine Corp. (Johnson Outboards), with promises of tax breaks, low taxes and low wages. "But when they got there, they found that the vendor/partner companies they needed to support their assembly plants did not exist. Their key suppliers were hundreds of miles away in the industrial centers they had left. As a result, the lower cost of doing business they had come pursuing did not materialize."

The relocated companies set about luring their key suppliers to the region, and North Carolina mounted a massive effort to build the required support infrastructure. Getting there, however, exacted a heavy toll, financially for the state and its taxpayers and in missed sales opportunities for the companies that found themselves stranded far from their key suppliers.

**Mother Ship Manufacturing Model**



*Vendors/partners manufacture specialized components within their expertise. Limiting the number of vendors/partners enhances production efficiency.*

*The Mother Ship manufacturer produces key components within its expertise, and assembles a final product in combination with components from vendors/partners.*

*Final product is distributed from Mother Ship to customers through its sales channels. Inherent advantages are cost savings, greater flexibility, and ability to customize the final product.*

As the North Carolina story illustrates, it is possible—albeit expensive and time-consuming—to create an environment conducive to Mother Ship manufacturing. A more logical choice for assembler/manufacturers is to choose an environment where appropriate industry cluster infrastructure already exists.

"It's a common-sense choice," says Nagel. "If I assemble a manufacturing team from people who work for me, I am limited by the capital I can afford to expend to acquire specific skills. But if I assemble a team of partner/providers—a virtual organization, so to speak—not only can I afford a much greater diversity and higher level of skills, I also have the flexibility to put together different virtual organizations for specific applications."

**A horizontal structure allows a manufacturer to import those leading-edge technologies and built-in price efficiencies into its own organization much more cheaply than if it had to develop them on its own.**

The existence of industry clusters, mostly in areas with a history of manufacturing activity, makes the U.S. the most efficient industrialized economy in the world in terms of utilization of capital resources, Kennedy argues. "The competition that exists among smaller manufacturers and suppliers in industry clusters creates a pool of leading-edge technology and keeps prices down," he says.

A horizontal structure allows a big assembler/manufacturer to import those leading-edge technologies and built-in price efficiencies into its own organization much more cheaply than if it had to develop them on its own. "Less industrialized nations such as China still rely on vertical integration because they don't have these clusters available," Kennedy says. "I was just in a plant in China where they make their own machine tools, forge their own steel, and do just about everything else in-house because they can't get any of these things from local suppliers, and the transportation infrastructure doesn't exist to bring them in from other cities."

### Limited Involvement

Sophisticated execution of the Mother Ship strategy can allow a company to limit its direct involvement in the manufacturing process tremendously, says Michael F. Corbett, president of Michael F. Corbett & Associates, a Poughkeepsie, N.Y.-based training, consulting and marketing research firm.

The idea is gaining credence across a variety of industries, Corbett says. "Sara Lee just announced that it plans to restructure....The company believes if it focuses on brand image and development, marketing, and product design, and relies on outside firms to manufacture most if not all of its products, it can do a better job," he says.

Yet another advantage of this approach to manufacturing is its ability to facilitate hard decisions that make economic sense but have repercussions in other areas of an organization. Kennedy relates an experience he had several years ago when he was consulting to General Motors in a cost-cutting initiative. The project focused on the cost of door-latch assemblies, and Kennedy had compiled a list of half a dozen or so GM-approved suppliers who could provide the assemblies for an average cost of about $3.50 per piece. Yet the company was paying about $6.50 to produce them internally.

"No one wanted to cut the cord to the plant that was making these door latches," he says. "Anyone who was in a position to make that decision was beholden to that plant or someone associated with it on some level. The Mother Ship strategy is ruthless in one sense, but it makes it easy to make the decisions that let you cut costs and improve efficiency, because there are not internal loyalties or politics to deal with."

Corbett expects this approach to manufacturing to continue to grow in the future. "Every company has to figure out how it can best invest its resources to create value for its shareholders and deliver value to its customers," he says. "Leveraging the unique skills, knowledge and expertise of outside organizations leads to reduced cycle times and helps bring better products to market faster. In most cases, the outside organization has a better cost structure as a result of doing what it does best, and the assembler/manufacturer can internalize that cost advantage into its own operating cost basis." ●

*Michael J. McDermott is a writer whose business articles have appeared in national publications such as* Adweek *and* Sports Illustrated, *among others.*

# Don’t Bet Against Chels

## With a little luck and the right incentives, a battered city is reclaiming its stake in the economy.

*by Brian Sullivan*

*The city of Chelsea is only two miles from downtown Boston and one mile from Logan Airport.*

# ea

A few years ago, nobody would have bet that Chelsea, a Massachusetts city with an unemployment rate hovering at 8 percent and an image wallowing in past mistakes, could ever see an economic revival, despite the city's location within one mile of Logan International Airport and two miles of downtown Boston.

But a state-sponsored tax incentive program that allows cities and towns to negotiate tax breaks for businesses willing to expand or locate in their communities has allowed Chelsea to bet on itself.

"Help us work, and we'll put the money on the table," says Jay Ash, who oversees the Economic Development Incentive Program (EDIP) for Chelsea. "The city can sell itself once we get our foot in the door, but for cities like Chelsea, people's first instinct is not to take a chance. When we float the tax relief card, it helps us get in the door." Once Chelsea manages to get in those doors, the odds change dramatically.

*Jay Ash oversees the Economic Development Incentive Program (EDIP) for the city of Chelsea.*

> ***"The city can sell itself once we get our foot in the door, but for cities like Chelsea, people's first instinct is not to take a chance. When we float the tax relief card, it helps us get in the door."***

Last fall, the Massachusetts Economic Assistance Coordinating Council (EACC), which oversees the EDIP on the state level, approved 11 projects that created 235 new jobs and brought more than $26 million of private investment into the city.

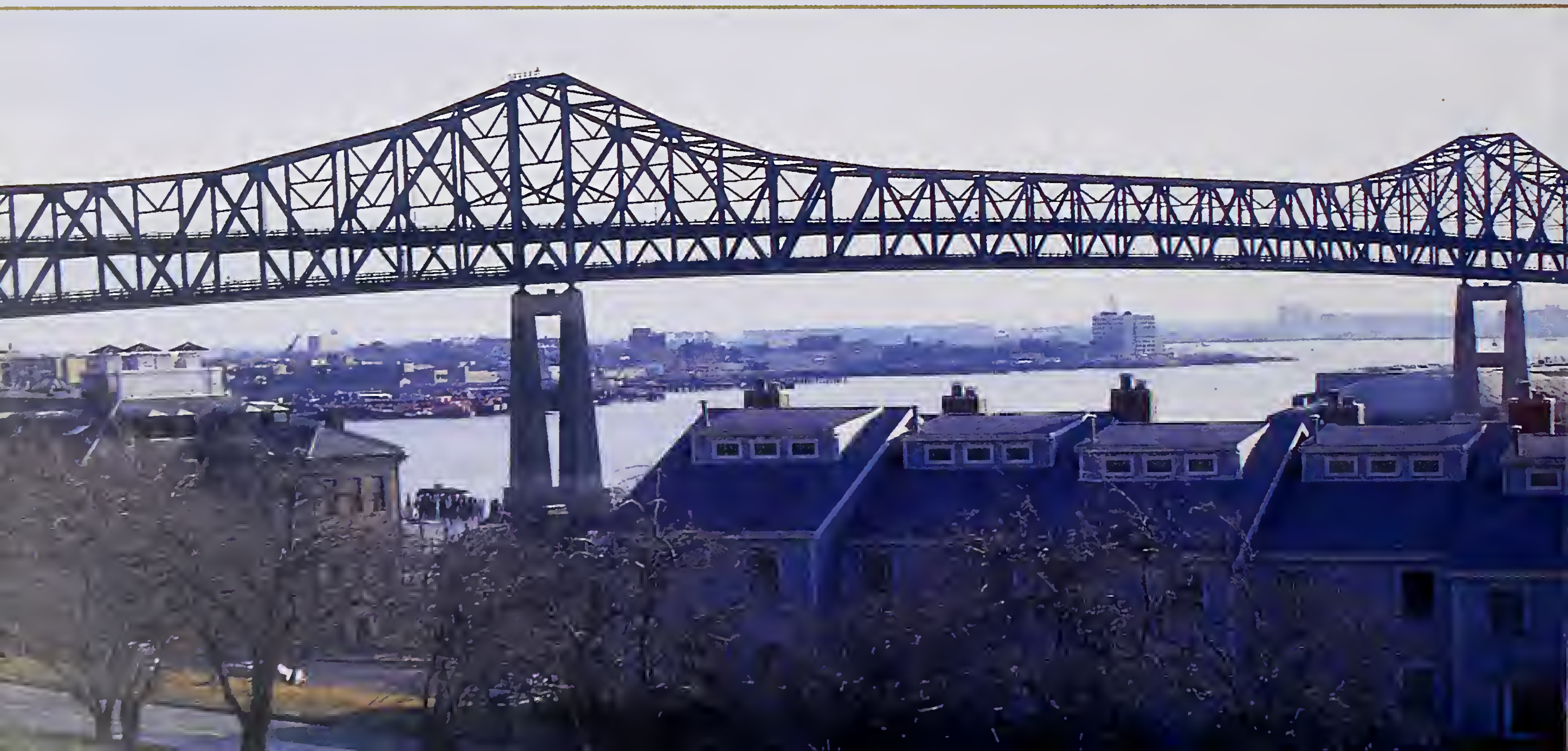
"It was the most projects [for one community] we ever certified at a single meeting," says David A. Tibbetts, Director of Economic Development and co-chairman of the EACC. "The city of Chelsea should be commended for the aggressive way it has begun to utilize the program."

Those projects ranged from major expansions by companies that have long called Chelsea home to the relocation of companies from other parts of the country.

Kayem Foods, Inc., which started in Chelsea as a small market owned by an immigrant in 1909, signed on for a $10 million expansion of its meat processing and distribution plant, located in the shadow of the Boston-bound Tobin Bridge. The project will create 60 new jobs and keep another 335 in the city. The company needed to expand its capacity in order to take advantage of markets that are opening up in Eastern Europe and Russia. Under the EDIP, Chelsea will give Kayem a 10-year break on its property taxes.

In another case, Autre Products, Ltd., a manufacturer of environmentally acceptable products for the marine industry, was considering moving its operations from Buffalo, N.Y., to Rhode Island. Owner Joe Simpson says he heard about the EDIP from a friend and was soon introduced to Ash. Now Autre will move to Chelsea, create 12 new jobs, and invest $200,000 over three years in equipment for a new facility. In exchange, Autre will receive a 10-year tax break from the city.

Simpson is still amazed that his smaller project received the same amount of attention as the Kayem project from the city and the Massachusetts Office of Business Development (MOBD). "We were running at the same time as Kayem, which had a $10 million renovation, but I would never have known that," Simpson says. "There was absolutely no difference in the way we were treated."



## Two Options for Tax Breaks

What makes the EDIP work is the way it is structured, according to Maureen Gordon, project manager for MOBD. The candidates for the incentive program often are companies that grow from the ground up.

Officials within the state's 34 "economic target areas" are allowed to negotiate with any business that might be a good match for their city or town.

Project managers, like Gordon, work closely with their local counterparts, like Ash, to bring the businesses in successfully. None of the projects ever goes to the state level without first being approved by the local city council or town meeting.

Under the program, the municipalities can negotiate a local property tax incentive from one of two options.

The first option is called a special tax assessment. Under this plan, the city or town, while still assessing the property at full and fair value, collects only a percentage of the tax during the life of the project. In the first year, the tax is zero percent of the existing and new assessed value of the real estate. In the second year, the municipality can tax up to 25 percent of the assessed value, up to 50 percent in the third year, and up to 75 percent in the fourth year. In the fifth and following years, the property can be taxed at up to 100 percent of its actual assessed value.

The more flexible type of tax incentive program is the tax increment financing (TIF) agreement. Under a TIF, a tax incentive arrangement can be made for up to 20 years and no less than five. Essentially, a TIF allows the city or town to waive a percentage of the new taxes that would have been levied because of improvements to the property.

Suppose, for example, a company bought a $100,000 parcel of land and built a $400,000 building. While the total assessed value of the land is now $500,000, the city does not have to tax the land at that value. Instead, it can waive a percentage of the taxes on the $400,000 worth of improvements.

The only part of a project that receives the tax break is the new growth and new development, says Sean Calnan, director of the EACC at MOBD. The city, he says, does not lose anything under the TIF because the land is still taxed at its prior value. The tax level under a TIF plan, Calnan says, is the same as if no new construction took place. And the new demands on services are offset by added economic activity.

"It's simple," Calnan says. "The more money that is invested, the larger the tax credit. We didn't give away a penny. It's all based on investment in Massachusetts. This is not corporate welfare. The city or town will still get taxes from the original value of the property. What gets exempted is the value of the improvements."

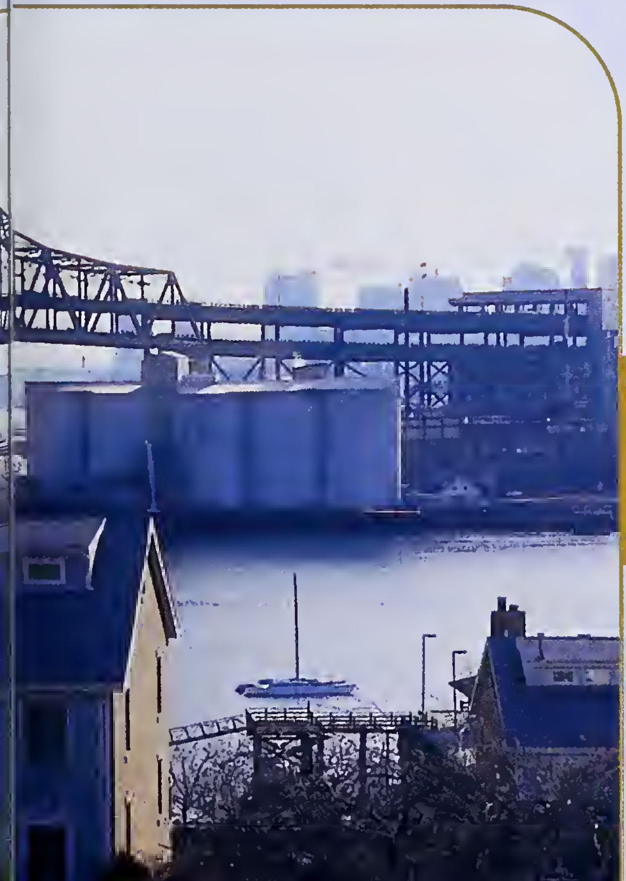
In the case of the Kayem Foods expansion, the company will receive a 50 percent tax break on that part of its tax bill that is tied to the improvements it makes on the property. That 50 percent tax break will last for 10 years.

Kayem's vice president for finance and administration, Stephen Mosher, says the agreement allowed the company to do more than it would have been able to do if the tax break didn't exist.

"We're talking about a $10 million investment. What the tax incentives allow you to do is free up another half a million so you can buy that second piece of equipment that you wouldn't have been able to afford otherwise," Mosher says.

***The candidates for the incentive program often are companies that grow from the ground up.***

*Maureen Gordon is a project manager for MOBD.*



*The Tobin Bridge provides a vital link between Chelsea and Boston.*

KAYEM FOODS
CUSTOMER PICK-UP
KAYEM
The Definition of Great Hot Dogs & Deli Meats
Your Full Service Deli-Distributor!

*Kayem Foods used state incentives to help launch a $10 million expansion in Chelsea.*

## Surprise Benefits: Cleanup and Preservation

Other benefits have sprung out of the EDIP as well.

Ash says the program goes beyond development incentives. Chelsea has used the EDIP to promote historic preservation and environmental cleanup.

Logan Park & Go is one example of how a little ingenuity and the luck of geography, combined with help from the EDIP, prompted a solution to a hazardous problem.

Due to Chelsea's history as a seaport, there are many parcels that have become saturated with petroleum products that used to be off-loaded at tank farms in the area.

"Chelsea is an older urban city that has seen a variety of uses over the years. Not all of them have been environmentally friendly," Ash says. "Chelsea is also a tiny city, only eight square miles. We need to go back and recapture that land, clean it up and use it.

"The problem is that brownfields are still a very costly proposition," Ash adds. "We needed to find a way to help write down the cost and make these brownfields competitive in today's market."

The city got together with the owner of one such parcel and came up with a solution that benefited all. As the oil-saturated soil was being cleaned up, the land was covered with an asphalt cap. The owners have turned that cap into a satellite parking lot for Logan International Airport, which is just a mile away. Travelers leave their cars in the lot and take shuttle buses to the airport.

The result is that six new jobs will be created and the owner will be able to get some use out of the land while investing $1.6 million in improvements. In exchange, Chelsea has agreed to waive 100 percent of the taxes on the improvements made to the land for 10 years to help offset the cost of the cleanup.

Ash says the program also has allowed Chelsea to preserve one of the city's oldest fire stations.

A fast-food chain wanted to buy the fire station and knock it down to build a franchise. The city stepped in and blocked the plan. A bank, USTrust, then took a look at the parcel and agreed to lease the old station and do some of the restoration. But its office would be across the street from branches run by two competitors. Ash says it would have been cheaper and easier for USTrust to buy another piece of property for its branch.

Chelsea stepped in and, using the EDIP, gave USTrust a 10-year, 20 percent tax break on the $750,000 in renovations the bank has promised to make on the building. "The bank has gone so far as to purchase an old fire truck for the lobby," Ash says "As a result, USTrust is making a major investment in Chelsea and creating six new jobs."

## How It Works

After the city approves the details of these deals, the projects then go to the Economic Assistance Coordinating Council for state approval. The EACC is composed of 11 members, four of whom are designated by statute and seven appointed by the governor. The EACC is co-chaired by the Director of Economic Development, David A. Tibbetts, and the Director of Housing and Community Development, Jane Wallis Gumble.

The EACC hears from an MOBD project manager, who acts as an advocate for the plan, and then, if the paperwork is all in order and the council decides the plan has merit, it is certified and becomes reality.

By gaining certification, a company becomes eligible for some other tax benefits as well: a 5 percent state investment tax credit for tangible, depreciable investments and a 10 percent abandoned building tax deduction for costs associated with renovating an abandoned building. The building must be at least 75 percent vacant for at least two years. The results in Chelsea are indicative of the success the EDIP has had across the state. As of January, the program is credited with creating 21,431 permanent full-time jobs, bringing in $2.48 billion in private investment, and keeping 37,092 existing jobs in Massachusetts since its inception in 1993.

Tibbetts says the EDIP is just one of the tools in the arsenal of business development in Massachusetts. He points to 21 tax cuts, 18 of which have been targeted toward businesses, as proof that Massachusetts is back in the game. In addition, then-Governor William F. Weld and now Governor Paul Cellucci, and the Legislature, have worked hard to reform worker's compensation rates and unemployment insurance costs dramatically over the past seven years. Tibbetts says the unemployment insurance reform alone will save Massachusetts's businesses more than $180 million in 1998. Massachusetts also has one of the most aggressive research-and-development tax credits in the country. The basic R&D tax credit is 10 percent and in some cases can go as high as 15 percent.

And while the economic future for Massachusetts continues to be bright, the future for Chelsea is becoming equally optimistic. Ash says with the help of EDIP, Chelsea has received a commitment from Hampton Inns to build a 200-room hotel in the city. Through its luck of geography and the innovation of its state and local officials, Chelsea is winning the bet it made on itself. ●

*Brian Sullivan is a freelance writer based in Needham, Mass.*

*Logan Airport's Park & Go is a solution to a hazardous problem.*

# A Polished Shoe

## Fits Business Just Fine

Clay Collins

NORTHEAST

*IT IS KNOWN, AFFECTIONATELY, AS "THE SHOE."*

The massive gray edifice, built in Beverly by United Shoe Machinery (USM), has caught the eye of those drawn to innovation since its construction was started in 1903. Its builders—industrialists out to corner the market on the machinery used to make shoes—took a pioneer's gamble in departing from brick, the standard of the day. They went with what was new: reinforced concrete. Structurally, it could accommodate bigger windows, shedding more light and air on workers.

"The technology was a little suspect at the time," says Gerry McSweeney, a modern-day developer whose gleaming new office sits where acres of well-oiled machines drummed along in the Shoe's heavy-manufacturing heyday.

But the Shoe wore well. Innovation suited it. Under USM's banner, those industrialists captured 80 percent of their industry worldwide. For decades, their factory was the largest reinforced-concrete structure in the world. It provided jobs for 4,000 workers.

Today, McSweeney and his colleagues at Woburn-based Cummings Properties Management, Inc. have the spirit of innovation humming again. They're spearheading an ambitious push to make the long-derelict Shoe a new engine of commerce.

Many in the community have ties to the old place, and the project has received strong local support. Beverly Mayor William F. Scanlon, Jr. "was very aggressive in trying to do something with this 1.2 million-square-foot center," says Jack Wilson, Northeast regional director for the Massachusetts Office of Business Development (MOBD).

"Mayor Scanlon and the Beverly City Council worked with their counterparts in Salem to extend Salem's 'economic target area' designation to include the city of Beverly," says Wilson. The state has set a limit of 34 such areas, but there are no restrictions on extensions, so the communities could partner. "That allowed the city and state to offer significant tax incentives."

> *"At first, many businesses were skittish about staking their futures on such a decrepit old place. They weren't as sure it could be transformed as we were. The state's economic incentives were a big help."*
>
> —Gerry McSweeney,
> Cummings Properties Management

Cummings would soon begin to feel the effect.

"At first, many businesses were skittish about staking their futures on such a decrepit old place. They weren't as sure it could be transformed as we were," says McSweeney. "The state's economic incentives were a big help."

In the mid-1990s, MOBD recognized Cummings, a major industrial development player, as a likely catalyst. By April 1996, Cummings had signed an agreement with Black & Decker, which had acquired the Shoe after USM's breakup. The place was set to become a "certified project," a modern business magnet. And innovation kicked in. Cummings itself met all the requirements for certified-project status. Security, maintenance, and the

CUMMINGS PROPERTIES

*The "Old Shoe," just prior to its "refitting"*

TARANTOLA

TARANTOLA

*The "New Shoe" steps in with a new look.*

like meant the creation of permanent jobs.

"Typically, the tenant companies apply for certified project status since they are the ones creating new jobs—the threshold criterion for the Economic Development Incentive Program [EDIP]," says MOBD's Wilson. "What's great about this project is that the [space] gets developed, and the developer—Cummings—gets to take advantage of the 5 percent investment tax credit and a 10 percent abandoned-building tax deduction for the qualifying investments associated with redeveloping the building."

It's a significant point. Currently in Massachusetts, a manufacturer or research-and-development corporation that invests in any "qualifying tangible personal property"—anything with a depreciable life of four years or more—can get a 3 percent investment tax credit. A developer would normally be excluded. "However," says Wilson, "under the EDIP, any company that becomes a certified project, regardless of the type of company it is, benefits from a full 5 percent investment tax credit."

Thus, the three legs of a cooperative stool: The state offers the two incentives outlined earlier; the company lays the groundwork for job-creation; and the city offers a local property tax deal. It can either waive taxes for the first year and then gradually phase them in over the next four years, or it can offer a tax increment financing (TIF) agreement, under which taxes are based on the value added to the property.

Those are incentives Cummings likes to leverage. "We'll mention [them] with virtually every prospect," says McSweeney. He cites one prospect, the biotech firm Collagenesis, as "very much the new generation of business here, a cutting-edge firm....They're creating jobs and also spending an enormous amount of money on specialized, expensive equipment.

"If they can take advantage of a 5 percent investment credit," he says, "it can be a meaningful number."

Collagenesis, which specializes in biomedical injectable implants, is also the kind of outfit both the state and the developer like. "They may be small today," says Wilson, "but they're on a fast track for tremendous growth."

Potential for expansion was among the reasons Collagenesis came here in November 1996, says Louis R. Frisina, the company's president and CEO, but there were other motivations. He says executives at Cummings "brought tremendous vision and a clear picture as to how they saw the Shoe developing, including the likely addition of other high-tech companies."

Such dynamism likes company. In all, more than 200 companies of varying size are now in place, just over 50 percent capacity. Not bad for a property once derided as a "single-use facility."

So when will the Shoe be full? McSweeney laughs, raising an index finger as if to gauge the prevailing economic winds. "In the next 12 to 15, maybe 18 months," he says, if the economy stays strong.

What remains is more customization of this sturdy, quarter-mile-long "groundscraper," as one architect dubbed it. The new facade is up, with 2,300 windows replaced. Two crews work day and night just sawing and drilling through foot-thick concrete.

McSweeney is already looking forward. "We've got upwards of 3,500 parking spaces," he says, "but we're envisioning the need for more. We're starting to plan a four-story garage." ●

# All Roads, New & Improved,

## Lead to Economic Expansion

*Christopher Kenneally*

CENTRAL

*They're redrawing the road map for business success in central Massachusetts—literally.*

In Blackstone Valley, a historically rich region of 11 towns on the southeastern edge of Worcester County, construction is under way for an interchange linking Route 146 to the Massachusetts Turnpike, with completion scheduled for this fall. At a cost of $230 million, the project is the second-largest ongoing road construction effort in Massachusetts, after Boston's multi-billion dollar "Big Dig."

In Marlborough, work on several major road improvement projects, including a widening of Route 20 as well as new access roads between Route 20 and Interstate 495, is slated to begin later this year. That work is one strong reason why Fidelity Investments, with 3,700 of its employees currently working at three buildings in Marlborough, has made such a major stake there. "We see real estate as an investment," says Frank Crocetti, vice president and general manager for Fidelity Investments. "This certainly enhances our investment."

O'CONNOR

For obvious reasons, transportation infrastructure plays an important role in regional business development. Just as the Romans and Chinese of ancient times built roads to facilitate trade in their far-flung empires, highway development throughout the United States has set the stage for economic growth.

In Massachusetts particularly, construction of Route 128 in the 1960s and I-495 in the 1970s spurred the state's evolution from a largely industrial and blue-collar economy centered in cities, to a high-tech powerhouse of white-collar businesses located in suburban research and office parks.

Marlborough, for example, faced an uncertain future when the local shoe industry began to decline a generation ago, recalls Peter Panagore, Marlborough's planning and economic development manager. Then, construction in the late 1970s of an interchange linking Interstates 495 and 290 (an access highway to and from Worcester), set the city on course to become a major center of computer manufacturing.

> *The rich promise of Route 146 isn't limited only to the Blackstone Valley. The highway roughly follows the meandering path of the Blackstone River and will eventually become a four-lane, limited-access, tree-lined parkway from Worcester to the Rhode Island border.*

"The interchange allowed people to move easily up and down I-495. That was the beginning of development for us," Panagore notes. "It gave us the ability to expand, both industrially and residentially. It meant to us what Route 128 meant to Waltham and Bedford in the early part of the 1960s. Businesses have chosen this area as a place they want to be."

Blackstone Valley officials are watching crews work on new bridges and roads and anticipating a similar transformation of their area.

"We believe the Route 146 improvements will generate a 'third wave' of development in Massachusetts, after 128 and 495," says Marty Green, economic development director for the Blackstone Valley Chamber of Commerce (BVCC). According to Green, the access improvements will cut travel time into and out of the region to 45 minutes for Boston, and just 15 minutes for Worcester.

In order to make the "third wave" a reality as early as possible, Green says, his organization of nearly 500 members is leading a regional effort among business leaders, local officials, and residents to promote long-term growth that reflects the character and culture of Blackstone Valley.

"The key is not so much the development, but what it's going to look like and how it will fit into the area," says Phillip Brown, president and CEO of UniBank for Savings, a $280 million mutual savings bank based in Whitinsville, and chairman of the BVCC's Regional Planning and Economic Development Committee. "We're trying to meet with each of the communities along Route 146 and talk with them about the importance of proper zoning."

In addition, the BVCC has developed guidelines to help towns become more "business-friendly," and it is leading regional marketing efforts, including the promotion of tourism.

A century ago, cotton, paper, and machinery mills built by the Whitin, Slater, and Draper families were scattered throughout the Blackstone River Valley. Today, those same mills house leading-edge firms that employ the latest in robots and digital technology. Over the next five years, predicts the BVCC's Green, a further influx of manufacturing, biotech, health services, and retail businesses could create as many as 700 new jobs.

The rich promise of Route 146 isn't limited only to the Blackstone Valley. The highway roughly follows the meandering path of the Blackstone River and will eventually become a four-lane, limited-access, tree-lined parkway from Worcester to the Rhode Island border.

"We liken it to 'Storrow Drive West' [a similarly designed route along Boston's Charles River]," says William Purcell, vice president of the Worcester Area Chamber of Commerce. "Route 146 will serve as an attractive gateway into Worcester and should make possible the rebirth of the center city here." ●

O'CONNOR

# Titleist, Top-Flite

## Tee Up in Bay State

*Brian O'Connell*

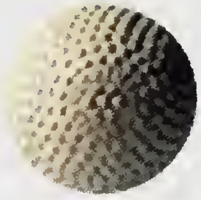
Want to win an easy bet? The next time you gather for a round of golf with your chums, ask if anyone knows the location of the top golf ball makers in the world. Chances are, you'll hear about Florida, California, or Taiwan (with a few wisecracks about the world's largest golf ball depository being the stretch of ocean along the 18th hole at Pebble Beach). "Ha!" you'll say, palms outstretched. "Try Massachusetts."

Certainly, your friends will dump you in a bunker if you persist, but they won't be able to deny that you know your golf balls. Because Massachusetts, indeed, is home to both Titleist Worldwide (a division of Acushnet Company) and Top-Flite (a division of Spalding Sports Worldwide). Titleist is the world leader in golf ball sales (in terms of dollars), and Top-Flite produces the most golf balls. Professional golfers worldwide won 163 tournaments using Titleist golf balls, while Top-Flite is the preferred choice of the 18-handicapper, who operates on a tighter budget than a Tiger Woods, the new spokesman for Titleist Golf.

### A Tradition Not Easily Displaced

How did Massachusetts come to be the golf ball capital of the world? Easy, say officials at both companies. They each have a great workforce and a long tradition of success in the state.

"Why are we here when we could be in a golf hotbed like California or Arizona?" asks Herb Boehm, executive vice president of golf ball research and operations at Titleist's home base in Fairhaven, Mass. "Because we've been here since the start of the century. We've grown close to the Southeastern Massachusetts community, and the community has grown close to us."



*An early sample of the modern dimpled golf ball.*

COURTESY WWW.TITLEIST.COM

Once a rubber manufacturing company that dabbled in golf balls, Titleist is now a golf ball company that dabbles in rubber goods. Although company founder Phil Young launched Acushnet in 1910 as a rubber company, his passion for golf soon turned into a crusade to find the perfect golf ball. "Mr. Young was an avid golfer," explains Boehm. "But back in the 1920s, when he was playing, all the golf balls performed very erratically. The cores were off-center and some unraveled after only a few strokes." Flustered after losing a match due to what Young claimed was a faulty ball, he enlisted a dentist friend who owned an X-ray machine to examine the wayward ball. Convinced he could build a better one, Young tapped a few engineers from his fledgling rubber company to develop a more tightly wound, intricately centered golf ball. In 1932, the Titleist golf ball was launched.

*Flustered after losing a match due to what he claimed was a faulty ball, Acushnet founder Phil Young enlisted a dentist friend who owned an X-ray machine to examine the wayward ball. Convinced he could build a better one, Young tapped a few engineers from his fledgling rubber company to develop a more tightly wound, intricately centered golf ball. In 1932, the Titleist golf ball was launched.*

Over the next 65 years Titleist tightened its grip on the golf world, repeatedly developing some of the most innovative balls in the industry. In 1948, for example, Titleist engineers introduced the "Dynamite Thread" ball, which became the prototype for the lively, long-flying ball that everyone wanted to make—and hit. With the continued evolution of the golf ball, including the introduction of the revolutionary Surlyn-covered wound golf ball in 1974 (known to millions of users today as the Titleist DT), Titleist has never looked back. It's since branched out. In 1985 the company bought Foot-Joy, a popular golf shoe manufacturer, and its Bullseye putters and DCI Irons are appearing with greater regularity in golf bags worldwide.

Despite its considerable success and many opportunities to move to sunnier environs, Titleist has never considered leaving its Southeastern Massachusetts roots. "One of the reasons we have stayed and expanded in Massachusetts is that our hourly workforce is our greatest asset," says Boehm. "A lot of our workers are third-generation employees whose parents and grandparents worked for Titleist. We like it here." In 1997 the company decided against building a manufacturing plant in South Carolina, Georgia, or Alabama, all of which were vying for the business. "In the end we realized that lower labor rates in the South were a bit of a mirage. They weren't that much better than Massachusetts, and the gap was closing pretty quickly." The company decided to build a golf ball packaging center just down the road in Fairhaven and expand its existing facility in North Dartmouth.

TITLEIST

TITLEIST

### A Golf Ball for the Masses

Spalding's story isn't much different. What young American kid hasn't felt the satisfying heft of a Spalding basketball or tossed a Spalding football around on a golden autumn afternoon? And what duffer hasn't stopped off at a pro shop for a sleeve or two of Top-Flite golf balls before a round? While Titleist has the cachet of Tiger Woods and the PGA Tour, Top-Flite might be the golf ball dear to the hearts and minds of the American golfer (although last year 165 pros used its products on tour). The company's everyman appeal is synonymous with the low-key, no-nonsense way it conducts its business from its headquarters in Chicopee, Mass.

"We've succeeded in Massachusetts because we've been here for 80 years and have developed a relationship, both from a business and cultural standpoint, with Western Massachusetts," says Scott Creelman, executive vice president of Spalding Sports Worldwide. Tucked away in the beautiful Pioneer Valley at the cusp of the Berkshire Mountains, Creelman says, Spalding is able to draw upon the vast talent pool of the five-college area (comprising Amherst College, Hampshire College, Smith College, Mt. Holyoke College, and the University of Massachusetts). In addition, he says the company has a dedicated and capable workforce from the Chicopee, Holyoke, and Springfield areas."We work with the University of Massachusetts Polymer Science Department a lot on research and development," he says. "We just moved 25 employees from our Etonic shoe division in Brockton to Chicopee. We're happy here in Chicopee." The company also recently completed a $25 million warehouse, manufacturing, and customer service upgrade, and it will add workers from its newly purchased Richmond, Va.-based Ben Hogan Golf Company.

"Spalding has been in Chicopee for over a century and the company has no reason to leave," says Kent Lage, Western regional director for the Massachusetts Office of Business Development (MOBD). "The state has adopted some business incentives for good companies like Spalding, and that's helped as well."

Some local observers say the reason companies like Titleist and Spalding choose to stay in Massachusetts over California or Florida is that the workforce here is better educated and less transient—employees generally plan on sticking around. "You see people moving in and out of California on a regular basis, with many not staying that long," explains Larry Cameron, Southeast regional director for MOBD. "Here in Massachusetts, people have more ties to the community and are more likely to develop roots. In five years a company like Titleist will know that its employee base will still be here." ●

> *"Spalding has been in Chicopee for over a century and the company has no reason to leave. The state has adopted some business incentives for good companies like Spalding, and that's helped as well."*
>
> —Kent Lage, Western regional director for the Massachusetts Office of Business Development

TOP-FLITE

There are *many* ways the Massachusetts Office of Business Development can help your company in its relocation or expansion. Below are just some of the services offered by MOBD. For further information, call 1-800-5-CAPITAL.

## Site Selection

Ask MOBD about the Massachusetts Free Site Finder Service, offered through a unique public-private partnership, the Massachusetts Alliance for Economic Development. A confidential, statewide search for industrial land or buildings to fit your specifications can be done quickly and professionally for your expanding business. MOBD can also provide you with up-to-date profiles of communities you are considering as business locations. Information provided includes the local tax structure, local permitting requirements, and a demographic profile of area residents.

## Permitting

Massachusetts has implemented a One-Stop Permitting Program for all construction-related, state-issued permits. You can access this program by calling 1-800-5-CAPITAL. A project manager will act as your advocate, assisting you in identifying all required permits and moving the application through the entire process.

## Technology Resources

The University of Massachusetts at Amherst maintains a data bank of resources and research of interest to business, industry, and government. To access this information-referral service, call UMASS at 1-800-282-7708.

There are private sector and academic resources for technology transfer throughout Massachusetts. Call a project manager to help you identify the ones suited for your company.

## Industry Assistance

MOBD has full-time industry specialists as part of its professional staff, covering biotechnology, environmental technologies, telecommunications, and software. These positions were initially created through the initiative of industry groups which stepped forward with resources to create a more formal link with state government. Industry specialists work to provide expert, individual counseling for companies considering expansion or relocation to Massachusetts. They also act as permanent liaisons for industry in state government.

## Small Business Assistance

- **Business or marketing plan development.**

The Commonwealth has a statewide network of Small Business Development Centers, staffed with professionals who provide free one-to-one counseling and workshops to prospective and existing small businesses. Counseling services include: business and financial plan development, domestic and international marketing analysis, cash flow management, and human resources issues. Training programs on a variety of topics of interest to smaller businesses are also offered. Contact MOBD to put you in touch with a Small Business Development Center in your area.

- **Financing.** Several debt, equity, loan guarantee, grant, and bonding programs are available to businesses. For example, the Capital Access Program streamlines access to bank loans of up to $500,000 for smaller business borrowers in Massachusetts. MOBD can find the right funding for your venture and assist you in developing and packaging your business plan and applications for financing.

- **Entrepreneurial group.** The Entrepreneurial Group, run by the Corporation for Business Work and Learning, provides funding, oversight, and, in some cases, the operation of a number of entrepreneurial training programs designed to help dislocated workers start their own businesses or consulting practices. This unit also has begun to work more broadly in the area of micro-enterprise development and support, assisting existing owners of very small businesses.

## Exporting

The Massachusetts Export Center is a cooperative effort of the Massachusetts Office of International Trade and Investment, the Massachusetts Port Authority, the Massachusetts Small Business Development Center, the Massachusetts Industrial Finance Agency, and the Massachusetts Office of Business Development. The Massachusetts Export Center offers:

- *One-on-one export counseling*
- *Export workshops, training programs, and conferences*
- *Overseas market research, statistics, and trade leads*
- *International marketing activities, including trade missions and exhibitions*
- *A network of international offices*
- *Meetings with international business delegations*
- *Export financing*
- *International business resource library*
- *Bimonthly newsletter on international trade opportunities*

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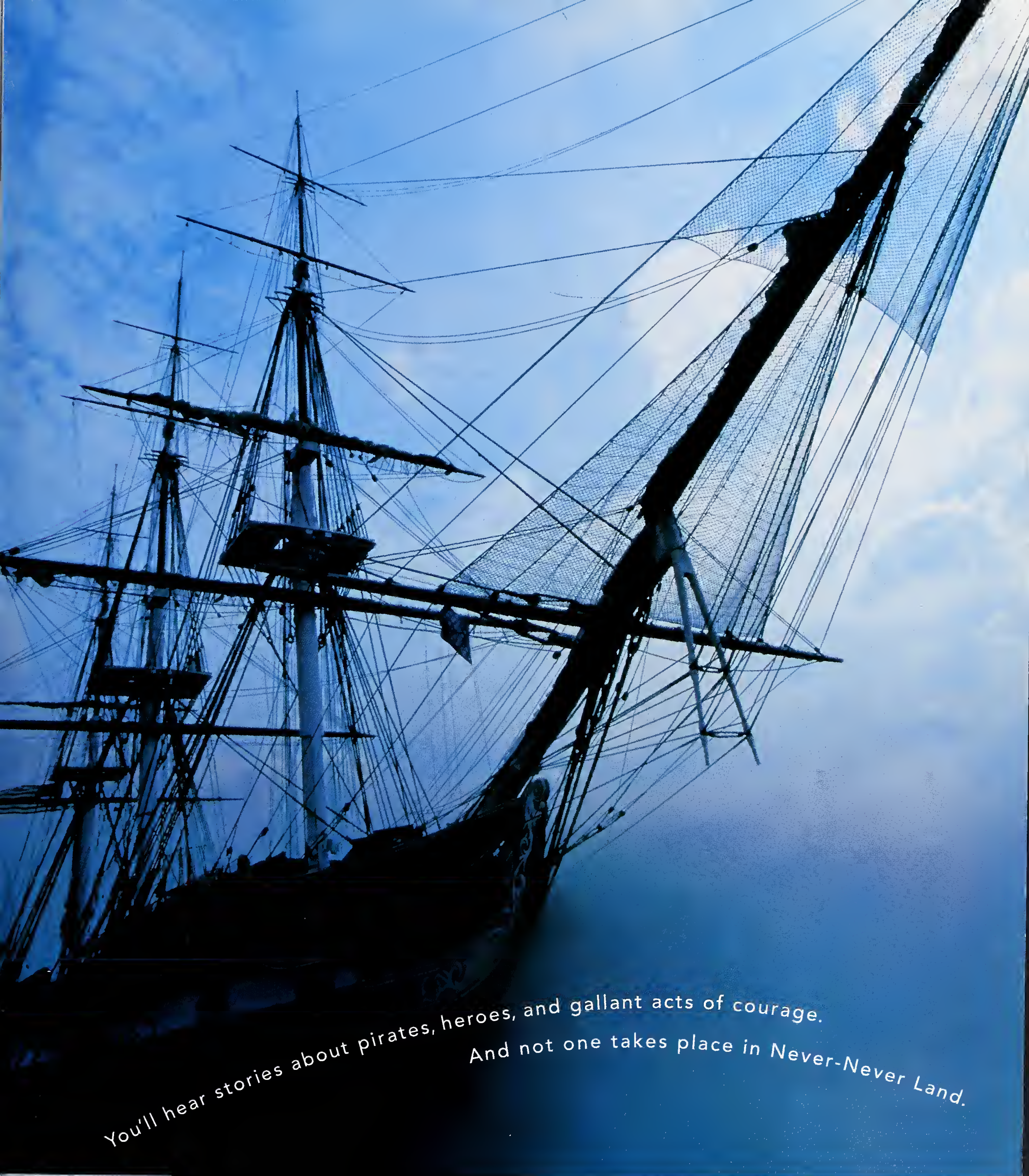
You'll hear stories about pirates, heroes, and gallant acts of courage.
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